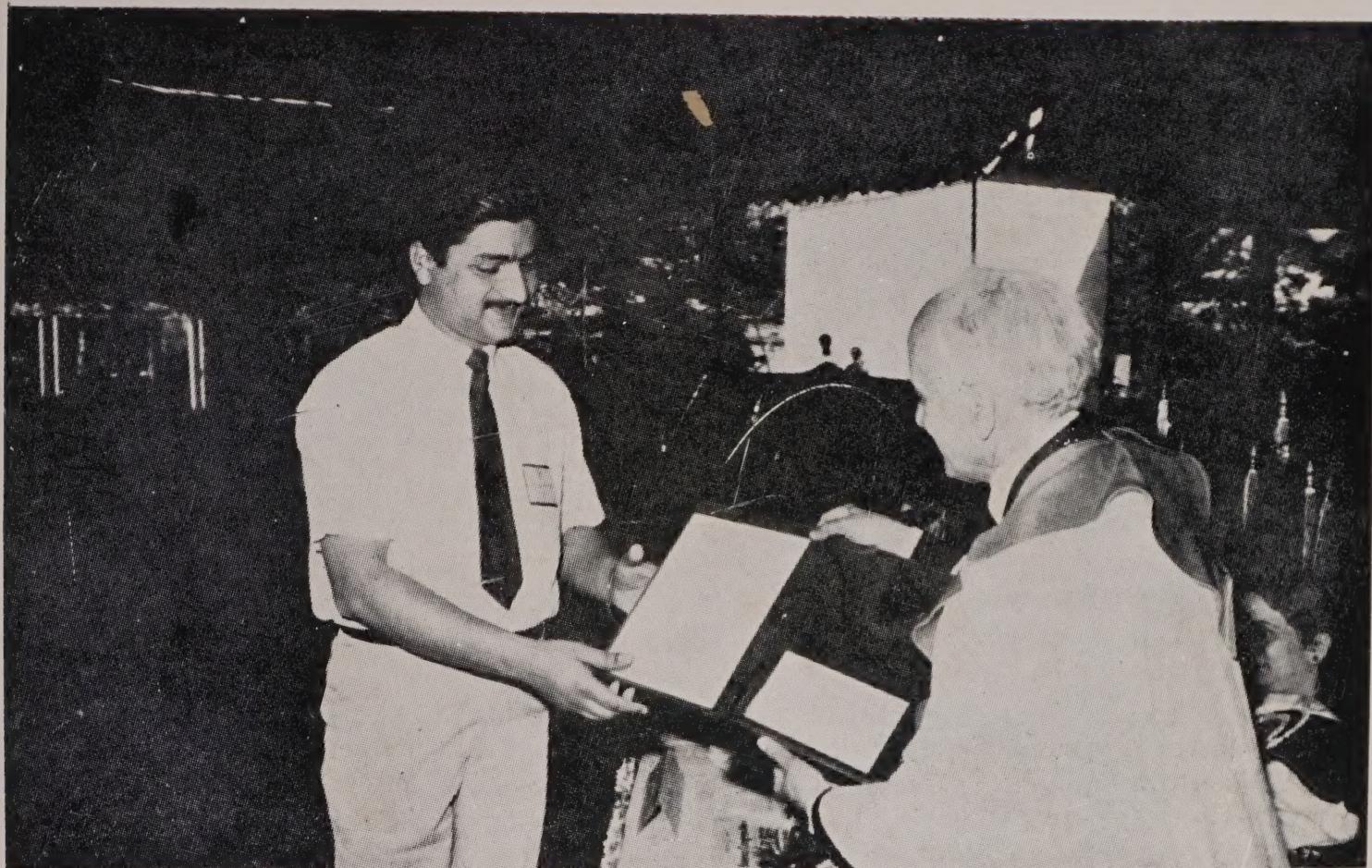




INSA NEWS

Issue 79

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An INSA Young Scientist Medal Awardee receiving the award from Dr A S Paintal, President, INSA
and Director General of the Indian Council of Medical Research

INDIAN NATIONAL SCIENCE ACADEMY
BAHADUR SHAH ZAFAR MARG
NEW DELHI

INDIAN NATIONAL SCIENCE ACADEMY

Bahadur Shah Zafar Marg, New Delhi-110002

List of scientists selected for the award of INSA Medal for Young Scientists (1986)

Dr Bimal Bagchi (b. 1-1-1954) Lecturer, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore-560012.

—for his contributions to theoretical studies of liquid structure and liquid-solid transitions.

Dr Amerjit Singh Barsa (b. 13-7-1958) Assistant Professor, Department of Botany, Punjab Agricultural University, Ludhiana.

—for his original contributions on the elongation and development of cotton fibres.

Dr Kamal Bhattacharyya (b. 3-8-1955) Lecturer, Department of Chemistry, University of Burdwan, Golapbag, Burdwan-713104.

—for his contributions to quantum chemistry especially in the area of perturbation formalism.

Dr K V R Chary (b. 10-2-1954) Scientific Officer, 500 MHZ FT-NMR National Facility, Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Bombay-400005.

—for his study of the structure of DNA segments by 2D FT-NMR.

Dr Jayaraman Gowrishankar (b. 24-3-1956) Scientist 'C', Center for Cellular and Molecular Biology, RRL Campus, Hyderabad-500007.

—for his work on genetics of osmoregulation.

Dr Dipankar Home (b. 11-11-1955) Theoretical Nuclear Physics Division, Saha Institute of Nuclear Physics, Culcutta-700009.

—for his very interesting work on fundamental aspects of quantum mechanics specially his studies relating to Bell's theorem, Aharonov-Bohm effect and incompatibility between Einstein's locality condition and quantum mechanics with CP violation.

Dr S K Koul (b. 10-1-1954) Centre for Applied Research in Electronics, Indian Institute of Technology, Hauz Khas, New Delhi-110016.

—for his innovative analysis of microstrip-like transmission lines and its application to the design and development of microwave and millimeter wave integrated circuits.

Dr Ravi Mehrotra (b. 2-8-1954) Scientist 'C', National Physical Laboratory, Hillside Road New Delhi-110012.

—for his work done after joining NPL in 1983 specially for his experiments on Quantum Hall effect, theoretical studies in viscoelastic effects in 2D electron liquid and his prediction of existence of shear wave in 2D electron liquid.

Shri B Mishra (b. 17-9-1958) Senior Research Fellow, Department of Geology and Geophysics, Indian Institute of Technology, Kharagpur-721402.

—for ingenuity in applying thermodynamics to problems of sulphide ore genesis.

Dr E V Sampathkumaran (b. 6-12-1954) Solid State Physics Group, Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Bombay-400005.

—for his extensive experimental studies of valence fluctuations in rare-earth systems.

Dr J A Sekhar (b. 3-9-1956) Scientist 'C', Defence Metallurgical Research Laboratory, P.O. Kanchanbagh, Hyderabad-500258.

—for his discovery of rapid pressurisation as a new solidification technique and his impressive contributions to rapid solidification processing.

Dr Y Chandra Sekharudu (b. 21-2-1958) Molecular Biophysics Unit, Indian Institute of Science, Bangalore-560012.

—for his work on computational study of lectin-carbohydrate interactions.

Dr A Sharma (b. 7-5-1955) Department of Physics, Indian Institute of Technology, Hauz Khas, New Delhi-110016.

—for his novel technique for the design and development of graded index optical imaging systems.

Dr R S Upadhyay (b. 15-11-1955) Lecturer in Botany, Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi-221005.

—for his original contributions towards the biological control of *Fusarium* wilt of pigeon pea.

Dr (Miss) Chandrika Varadachari (b. 6-5-1956) 7A Judges Court Road "RATNA-BALI" Calcutta-700027.

—for her original work on the chemistry and process development on the extraction of potassium from mica and biotite.

NOTICE

Effective April 1, 1987 guest room charges are as follows:

Fellows	:	Rs. 20.00 per day (Rs. 15.00 rental Rs. 5.00 establishment charges)
Non-Fellows	:	Rs. 40.00 per day (Rs. 35.00 rental Rs. 5.00 establishment charges)

The concessional rates of Rs. 20/- per head per day will be applicable only to Fellows/
Spouses. Relations of Fellows including children will pay charges admissible to Non-Fellows.

Sd/-
(S. Rajan)
Asstt Executive Secretary

The Academy and the Fellowship *

C N R Rao**

President, Indian National Science Academy

I have been President of this Academy for two years and I consider it appropriate to make a few observations about the Academy and the Fellowship before handing over the Presidentship. First of all, let me state how much I have enjoyed serving the Academy. The Academy has attempted to initiate new programmes and introduce some innovations that would bring credit to it. The Academy has brought out several worthwhile publications, the most notable being the "Profiles in Scientific Research" of Fellows and "Science in India". Discussion meetings have been held on important issues such as science education and health of science in India; valuable reports have resulted from such meetings. The number of exchange programmes with foreign academies has increased considerably, and now more scientists go abroad for scientific collaboration and to attend meetings than ever before. Attempts have been made to improve procedures, rationalize guidelines and minimize bureaucracy. The Academy premises in Delhi has become a popular place for scientists, especially Fellows, to visit. In all these endeavours my fellow officers, members of the Council and the staff of the Academy have given the fullest cooperation, and I am most grateful to all of them.

Some time ago, I had an opportunity to say a few words about the role of the Academy (see INSA Newsletter—Issue 73/March 1985). Without repeating the details, I would like to reiterate how important it is for the Academy and the Fellowship to contribute to the national effort in science and technology, not only professionally but also by helping to create a vibrant scientific community that plays a vital role in transforming our society. Obviously our professional contributions should be of the highest standard and promote the much

needed excellence. As senior scientists, the Fellows have to promote young talent. We have to fulfil the difficult task of providing the right kind of leadership. This would require high ethical standards. The younger generation of scientists should be able to look up to the Fellows for the right guidance. The Academy has to play an increasing role in providing impartial advice on important issues related to science and technology in the country.

I also realise that scientists deserve to be treated better. We have to provide satisfactory amenities to all scientists. We have to ensure that scientists are not abandoned during their working life and after retirement. We have to try and protect the rights of scientists and provide an atmosphere conducive to their work. We have to do everything possible to see that science finds the right place in our value system.

After having said all this, I must express some misgivings I have had in the recent past about the crucial causes for the state of science and technology in the country. I believe that in spite of some of the successes we have had in certain areas of science and technology, the total scientific scenario in the country is not altogether encouraging. There are very few men and institutions of excellence. The morale and performance of the average working scientist are not very high. I feel that by merely increasing salaries and other benefits or by providing large research grants, we shall not be able to improve our performance. Change for the better has to come from us scientists who have to rise to the occasion. It appears that a high proportion of scientists indulge in conversation that is not only unproductive but also spreads an atmosphere of

*Observations made in the Anniversary Address—1987 delivered at the 52nd Anniversary General Meeting of INSA held on 2 January 1987 at the Indian Institute of Science, Bangalore.

**now past President.

general dissatisfaction and hopelessness. Denigrating institutions and individuals seems to have become a preoccupation. This has caused me much anguish and anxiety, for the future of science in India depends on us. Unless we learn to live

with one another as scientists, I see no hope. I believe that the Academy and the Fellowship have the main responsibility of ushering in a scene of optimism in the country.

* * *

ONLINE FACILITY AT NAL TO ACCESS THE DATABASES OF ESA

The European Space Agency (ESA) has set up an international information network (ESANET) based on a central mainframe computer in Frascati, Rome, Italy. ESANET has more than 70 databases/data-banks containing in all 35 million abstracts of literature in all branches of science and technology and other fields. ESA has since set up and commissioned two high-speed terminals at NAL.

The terminal equipment consists of 2 IBM PC/XT microcomputers, 2 modems, 2 printers and one X-25 PAD (to support up to 8 terminals). All these items of equipment have been provided by UNESCO to NAL under the ASTINFO programme.

The terminal equipment is linked to ESANET via a high-speed (2400 bps) dedicated telecommunication link from NAL to Bombay over the national microwave circuit and from Bombay to Rome via satellite (INTELSAT). The databases are accessed by ESA-QUEST, a versatile user-friendly and menu-driven retrieval software provided by ESA.

CSIR laboratories and institutes, DRDO, ADA, BEL, HMT and all other organizations in India are eligible to use the facility for bona fide research and study. The facility is available for use from 9.00 a.m. to 5.00 p.m. Monday to Friday (extension up to 10.00 p.m. is possible). No commercial use of the facility is permissible.

The 'connect-time' costs for accessing the databases will be about Rs. 700/- query including online printing up to 100 bibliographic citations. Users in Bangalore can visit NAL and make use of the facility. Users outside Bangalore can send in details of their search queries by telex (0845.279 NAL IN), telephone (574262), telegram (NAEROLAB, Bangalore) or by post to Head, Information Centre for Aeronautics, National Aeronautical Laboratory, P.B. No. 1779, Bangalore 560 017.

Brochures and additional information can be had from : The Director, (Attn: Shri M N Seetharaman, Head, Information Centre for Aeronautics), NAL, Bangalore.

* * *

CHANGE IN THE EDITORIAL BOARDS

- (a) Editorial Board of Indian Journal of Pure and Applied Mathematics
 - (i) Professor I B S Passi in place of Professor R S Mishra.
 - (ii) Professor S S Abhyankar in place of Professor Gopal Prasad.
 - (iii) Professor T N Shorey in place of Professor R Askey.
- (b) Editorial Board of Proceedings of the Indian National Science Academy: PART A
 - (i) Professor K S Valdiya in place of Professor G Swarup.

* * *

Council Diary

A meeting of the Council of the Indian National Science Academy, New Delhi was held on 1st January 1987 at the Indian Institute of Science Bangalore.

The President, INSA, conveyed to the Council the sad news that Shri **A K Bose**, Ex-Executive Secretary, INSA was no more. He stated that he was looking forward to Shri Bose's visit to Bangalore as a special invitee to the Anniversary Meeting. It was proposed to present him an album containing the photographs taken at various INSA functions recalling the contribution and association of Shri Bose with the Academy for the past five years. The Council expressed its sense of deep sorrow and observed a minute's silence. The Secretaries were requested to send a condolence letter on behalf of the Academy to Mrs Bose.

The President then welcomed the members of the Council and wished them a very happy and prosperous New Year. He introduced to the Council, Dr **V C Vora**, who took charge of the post of Executive Secretary of the Academy with effect from November 3, 1986 and welcomed him, expressing his faith that during his tenure Dr Vora would add to the image of the Academy through his services.

IMPORTANT DECISIONS

1. It was decided to alter the date of the meeting of the ICSU National Committee from March 16th to March 18th, as March 16th is a holiday on account of 'Holi'.
2. The list of nominations, valid for consideration for election to the Fellowship of the Academy during 1987, was classified under various Sectional Committees as indicated by the Proposers and as approved on scrutiny by the Secretaries.

During scrutiny of nominations, 21 nominations based on the individual nominee's scientific contributions, were found to correspond to the interests of more than one Sectional Committee.

It was decided to refer such nominations to more than one Sectional Committee, with a request to the concerned Sectional Committees to give serious consideration to their nominations in their own Sectional Committee. The Council will then deliberate on the views and recommendations of the concerned Sectional Committees.

3. The Council constituted the Advisory Boards for the awards to be made for the year 1987 (as per list enclosed).

4. The President informed the members of the Council that 54 nominations were received for the award of **Indira Gandhi Prize for Popularisation of Science—1986**. The nominations related to the work published in the regional languages as well as in English. The Committee after considering the nominations recommended that for the year 1986 two awards of Rs. 10,000/- each may be made, keeping in view the importance of science communication in the regional languages as well as in English. The names recommended by the Committee for the award are:

1. Mr. **Surendra Jha**, Editor, Science Age, Bombay
 - for his outstanding contributions as an editor of a journal dedicated to the popularisation of science. In this role he catalysed the professional scientists to communicate to the general public the excitement, achievements and perspectives of modern science.
2. Dr **Mahidhara Nalini Mohan Rao**, Deputy Director, Radio Science Division, National Laboratory, New Delhi.
 - Dr Mahidhara Nalini Mohan Rao, a radio physicist, poet and literary figure, has written numerous books and articles on a wide range of topics in science and technology in Telugu newspapers and periodicals for many years. Dr Rao is a household name in Andhra Pradesh as a Science

Writer and his impact has been vast and durable.

The Council approved (i) as a special case to sanction two awards of Rs 10,000/- each for the year 1986 as 'Indira Gandhi Prize for the Popularisation of Science'; (ii) the recommendation of the award committee were unanimously approved.

5. The Council approved the recommendations made at the Officers Meeting held on 25th October 1986 as given below :

Senior Scientists Scheme

- i) The Senior Scientists position would be for a total duration of three years;
- ii) A scientist selected, should accept the same within the calendar year;
- iii) The scientist could avail absence for a period of three months in a year totalling nine months in a three year tenure. In the event of 'absence overseas' from the scheme for a period of three months or more, the senior scientist shall not be entitled to draw remuneration and contingent grant for the period of absence, and the total tenure including absence shall not exceed three years.
- iv) The remuneration of a Senior Scientist be raised from Rs 2,500/- per month to Rs 3,000/- per month.

Research Professorship

The remuneration of the Research Professor be fixed suitably on implementation of the recommendations of the Fourth Pay Commission.

6. The Council appointed the following as Convenors of Local Chapters for the period April 1987-March 1989 :

<i>Place</i>	<i>Name of the Convenor</i>
Allahabad	U S Srivastava
Baroda	V V Modi
Bangalore	V Krishnan
Bombay	G Govil
Calcutta	S C Pakrashi
Chandigarh	S K Trehan

Delhi	S K Joshi
Hyderabad	V K Gaur
Jaipur	R C Mehrotra
Kanpur	S S Katiyar
Kharagpur	G S Sanyal
Lucknow	B N Dhawan
Ludhiana	K S Gill
Madras	P M Mathews
Patna	R P Roy
Pune	V G Bhide
Roorkee	R J Garde
Trivandrum	N B K Nair
Varanasi	P Ramachandra Rao

7. The Council agreed that the value of Junior Research Fellowship/Senior Research Fellowship in the Academy should be at par with the CSIR. The Secretaries and the Executive Secretary were requested to do the needful.

8. The Council decided that the recruitment rules for reemployment of retired persons in INSA may be framed by the Secretaries and Executive Secretary, INSA and finalised in consultation with the President, Dr B K Bachhawat (Vice-President) and Professor P N Srivastava (Treasurer).

9. The Council constituted a committee consisting of Professor B K Bachhawat, Professor H Y Mohan Ram, Dr P Rama Rao and Professor R R Daniel to take follow-up action on the recommendations made at the INSA Workshop on **Health of Science in India**. The Incoming President may expand the committee, if he so desires.

Advisory Boards for the awards for 1987

Homi J Bhabha Medal

(—Experimental Physics)

1. President
2. R Chidambaran (SC: II)
3. P K Das
4. S K Joshi
5. Yash Pal
6. S Ramaseshan
7. A P Mitra

P C Mahalanobis Medal

(—Engineering and Technology)

1. President
2. R A Mashelkar (SC: IV)

3. M M Sharma
4. C V Sundaram
5. R Narasimha
6. P Rama Rao
7. V Rajaraman

K S Krishnan Memorial Lecture

(—Any branch of natural sciences)

1. President
2. R Chidambaram (SC:II)
3. G Mehta (SC:III)
4. V K Gaur
5. H Y Mohan Ram
6. P K Das
7. J Barnabas

B C Guba Memorial Lecture

(—Biochemistry, Nutrition Food and allied problems)

1. President
2. G Padmanaban (SC:IX)
3. L K Ramachandran
4. B K Bachhawat
5. N K Notani
6. Mrs K J Ranadive
7. H Y Mohan Ram

INSA—Vainu Bappu Medal

(—Astronomy/Astrophysics)

1. President
2. R Chidambaram (SC:II)
3. P K Das
4. S K Joshi
5. Yash Pal
6. S Ramaseshan
7. A P Mitra

K R Ramanathan Medal

(—Atmospheric Sciences and Meteorology)

1. President
2. P K Das (SC:V)
3. R Narasimha
4. A P Mitra
5. R R Daniel
6. V K Gaur
7. P R Pisharoty

Sunder Lal Hora Medal

(—Plant and Animal Sciences)

1. President
2. H Y Mohan Ram (SC:VI)
3. P N Srivastava (SC:VII)
4. P S Ramakrishnan
5. T N Khoshoo

Chandrakala Hora Memorial Medal

(—Development of Fisheries, aquatic biology and related areas in India during the five years preceding the year of award)

1. President
2. S K Sinha (SC:X)
3. P N Srivastava
4. S Z Qasim
5. V G Jhingran
6. H Y Mohan Ram
7. T N Khoshoo

Minutes of the 52nd Anniversary General Meeting of the Indian National Science Academy held at 4.00 p.m. on Friday, the 2nd January 1987 at the Faculty Hall of Indian Institute of Science, Bangalore.

Fellows present

- Professor C N R Rao, President
Professor P N Srivastava, Treasurer
Dr T N Khoshoo, Foreign Secretary
Professor S S Abhyankar
Professor P R Adiga
Dr T N Ananthakrishnan
Dr V Arunachalam
Dr P K Banerjee
Professor U C Chaturvedi
Dr B N Das
Professor B G Deshpande
Professor K S G Doss
Dr V K Gaur
Dr K K Kannan
Professor T R Kasturi
Professor C L Khetrapal
Professor R S Krishnan
Professor V Krishnan
Dr A P Mitra
Professor R A Mashelkar
Dr N R Moudgal

Professor N Mukunda
Professor R Narasimha
Professor N S Narasimhan
Professor Narendra Kumar
Dr N K Notani
Professor J D Padayatty
Dr A S Paintal
Dr Yash Pal
Professor T J Pandian
Professor C C Patel
Professor Phoolan Prasad
Professor C S Pichamuthu
Professor M K K Pillai
Professor M R N Prasad
Dr A N Radhakrishnan
Professor M S Raghunathan
Dr E S Rajagopal
Professor G Rajasekaran
Professor L K Ramachandran
Professor T V Ramakrishnan
Dr V S Ramamurthy
Dr A V Rama Rao
Dr P Rama Rao
Professor S Ramaseshan
Dr (Mrs) Kamal J Ranadive
Professor S Ranganathan
Professor S K Rangarajan
Professor N Appaji Rao
Professor K J Rao
Professor P S Rao
Professor G M Reddy
Professor V Sasisekharan
Dr M V C Sastri
Professor P S Sastry
Professor H G Sharat Chandra
Professor O Siddiqi
Dr K P Sinha
Dr A Sreenivasan
Professor C M Srivastava
Professor G S R Subba Rao
Dr C V Sundaram
Professor P N Tandon
Professor M Vijayan
Professor M A Viswamitra
Professor H Y Mohan Ram, Secretary
Professor S K Joshi, Secretary

Condolence on the passing away of the following esteemed Fellows of the Academy.

The deaths of Dr H N Siddiquie, Professor N R Dhar and Dr Albert Szent Gyorgy were condoled.

All present stood in silence for one minute as a mark of respect to the deceased.

Confirmation of minutes of the Annual General Meeting held on 1st October 1986.

The minutes of the Annual General Meeting held on 1st October 1986, read by Professor H Y Mohan Ram (Secretary) were confirmed.

To read names of those whose nominations have been received for election to Fellowship since the last General Meeting.

The names of those listed in Appendix-I whose nominations have been received for consideration for election to the Fellowship since the last Annual General Meeting of the Academy, held on 1st October 1986, were read by Professor S K Joshi, Secretary.

Admission of Fellows under Rule 13

The Fellows listed in Appendix-II were admitted to the Fellowship of the Academy.

Announcement of the award of the General Medal—The Meghnad Saha Medal due for 1987.

The name of Dr **Sukh Dev**, FNA for the General Medal was announced.

Announcement of the award of INSA Srinivasa Ramanujan Research Professorship 1987.

The name of Professor **B V Sreekanth**, FNA, for the Professorship was announced.

Announcement of the award of Indira Gandhi Prize for Popularization of Science—1986.

The names of Mr **Surendra Jha**, Editor, Science Age, Bombay, and Dr **Mahidhara Nalini**

Mohan Rao, Deputy Director, Radio Science Division, National Physical Laboratory, New Delhi for the award of Indira Gandhi Prize for Popularization of Science for the year 1986 were announced.

Announcement of the award of INSA Prize for Materials Science—1987.

The name of Professor **T R Anantharaman**, FNA for the award of INSA Prize for Materials Science for the year 1987 was announced.

Presentation of D N Wadia Medal 1986 to Dr C S Pichamuthu, FNA

The D N Wadia Medal 1986 was presented for Dr **C S Pichamuthu**, FNA. The citation (see Awards & Honours) was read by Professor S K Joshi.

Presentation of J C Bose Medal 1986 to Professor M A Viswamitra, FNA

The J C Bose Medal 1986 was presented to Professor **M A Viswamitra**, FNA. The citation (see Awards & Honours) was read by Professor H Y Mohan Ram.

Professor Viswamitra delivered a lecture on 'DNA—Drug interactions—a molecular basis' on 1st January 1987.

Presentation of Aryabhata Medal 1986 to Professor S Ramaseshan, FNA

The Aryabhata Medal 1986 was presented to Professor **S Ramaseshan**, FNA. The citation (see Awards & Honours) was read by Professor S K Joshi.

Professor Ramaseshan delivered a lecture on 'Excursions into research on materials and processing of materials' on 1st January 1987.

Presentation of S H Zaheer Medal 1986 to Dr C V Sundaram, FNA

The S H Zaheer Medal 1986 was presented to Dr **C V Sundaram**, FNA. The citation (see Awards & Honours) was read by Professor S K Joshi.

Shri C V Sundaram delivered a lecture on 'On the Development of Fast Breeder Reactors' on 1st January 1987.

Presentation of Shri Dhanwantari Prize 1986 to Professor P N Tandon, FNA

The Shri Dhanwantari Prize 1986 was presented to Professor **P N Tandon**, FNA. The citation (see Awards & Honours) was read by Professor H Y Mohan Ram.

Professor Tandon delivered a lecture on 'From Masses to Molecules: Studies in Brain Tumour Biology' on 2nd January 1987.

Presentation of Golden Jubilee Commemoration Medal (Biological Sciences)—1986 to Professor O Siddiqi, FNA

The Golden Jubilee Commemoration Medal (Biological Sciences)—1986 was presented to Professor **O Siddiqi**, FNA. The citation (see Awards & Honours) was read by Professor H Y Mohan Ram.

Professor Siddiqi delivered a lecture on 'Chemosensory Receptors' on 2nd January 1987.

Anniversary Address by Professor C N R Rao, President, INSA on 'Electron Energy Loss Spectroscopy: An old Technique rediscovered.'

Professor **C N R Rao**, President, INSA delivered the Anniversary Address on 'Electron Energy Loss Spectroscopy: An old Technique Rediscovered' (see: Proceedings of the Indian National Science Academy).

Institution of an Oration Award in memory of late Shri A K Bose, Ex-Executive Secretary, INSA

Professor C N R Rao, President, INSA, announced that the Council proposed to institute an award to cherish the memory of late Shri A K Bose, Ex-Executive Secretary, INSA who had served the cause of science selflessly. The award to be named '**A K Bose Oration Award**' would be given to a recipient of INSA Medal for Young Scientists. Further details regarding the mode of award will be worked out by the Secretaries. The proposal was approved by the General Body.

Professor Rao expressed how happy he was to work with Fellow Scientists in the Academy for promoting good science in the country. He was happy that INSA had become a friendly institution where scientists working in different disciplines met and interacted informally. He felt that as a community of scientists we had the responsibility of giving our best to the country and establish a rich tradition. As a working scientist the greatest satisfaction he derived in life was to be able to interact with young minds. The community must not only recognize the value of scientists but must ensure that the superannuated scientists are not put to pecuniary problems.

Professor Rao welcomed Dr A S Paintal and stated that the future of the Academy is bright in the hands of a person who was known for his high sense of scientific integrity. He thanked the Fellowship, officers and members of the Council and the staff of the Academy for the cooperation

received from them during his tenure of office as President.

Dr A S Paintal, accepting the office of the President highlighted the achievements of the Academy during Professor Rao's tenure and thanked him and the outgoing officers and members of the Council for their distinguished services. He also presented to Professor Rao a photographic album capturing some of the important events of Presidentship as a memento.

President

Secretaries

Appendix I

List of Nominations Received for Consideration for Election to Fellowship since the Announcement of the Last General Meeting.

Nominee	S.C.	Proposer	Date of receipt.
S M Chitre	II	J V Narlikar	6.10.1986
S C Datta	VI	S P Sen	17.10.1986
S K Gupta	IV	D Chakravorty	24.10.1986
V Ramamurthy	III	T R Kasturi	27.10.1986
G S Krishna Rao	III	D K Banerjee	27.10.1986
S Manzoor Alam	V	F Ahmad	27.10.1986
K G Mukerji	VI	B S Trivedi	28.10.1986
P Vasudevan	III	M Santappa	28.10.1986
S M Roy	II	B V Sreekantan	28.10.1986
P K Gupta	VII & X	J N S Yadava	28.10.1986
S Parthasarathy	II	G N Rama-chandran	29.10.1986
A K Sarbhoy	VI	R N Tandon	3.11.1986
M Adhikari	X	S K Mukherjee	3.11.1986
P Kachroo	VI	P N Mehra	4.11.1986
V Rajamani	V	V K Gaur	4.11.1986
N Viswanadham	IV	V Rajaraman	6.11.1986
S S Johl	X	N S Randhawa	7.11.1986
B D Chatterjee	VIII	A B Chowdhury	10.11.1986
B S Gupta	VII & VIII	K Swarup	10.11.1986
J Pasupathy	II	E C G Sudarshan	10.11.1986
Rattan Lal	X	N S Randhawa	11.11.1986
Sandip Pakwasa	II	E C G Sudarshan	11.11.1986
K N Trivedi	III	J N Chatterjea	11.11.1986
M K Srivastava	II	S K Joshi	11.11.1986
D M Renapukar	VII	Ishwar Prakash	11.11.1986
A K Ghosh	VII	Asok Ghosh	11.11.1986
N Sethunathan	X	I P Abrol	11.11.1986
L N Mandal	X	S K Mukherjee	11.11.1986
I B S Passi	I	R P Bambah	11.11.1986
M V Nori	I	M S Raghunathan	11.11.1986
A B Prasad	VI	R P Roy	12.11.1986
P Rodriguez	IV	C V Sundaram	12.11.1986
U W Kenkare	IX	A N Bhaduri	12.11.1986
N S Rangaswamy	VI	H Y Mohan Ram	13.11.1986
N T Singh	X	S S Prihar	13.11.1986
(Mrs) Indra			
K Varma	III	J C Ahluwalia	13.11.1986

V D Choubey	V	R C Misra	13.11.1986
J P Verma	VI	K S Bhargava	13.11.1986
V K K Prabhu	VII	T N Anantha-krishnan	13.11.1986
D S Varma	IV	S C Dutta Roy	13.11.1986
V R Muthukaruppan	VII	T N Anantha-krishnan	13.11.1986
K S Murthy	X	Y P Abrol	13.11.1986
Gopal Ranjan	IV	R J Garde	13.11.1986
C A Reddy	II	A P Mitra	13.11.1986
J K N Sharma	II	A R Verma	14.11.1986
T A Venkita-subramanian	IX	B K Bachhawat	14.11.1986
Randhir Singh	VI & X	S K Sinha	14.11.1986
Haridas Banerjee	II	P M Mathews	14.11.1986
Y V R K Prasad	IV	S Ranganathan	14.11.1986
K S Nandpuri	X	K S Gill	14.11.1986
A K Ghatak	IV	M S Sodha	14.11.1986
R S Pathak	I	R S Mishra	14.11.1986
Rama	V	B L K Somayajulu	17.11.1986
V K Kapahi	II	G Swarup	17.11.1986
Dalbir Singh	VI	B M Johri	17.11.1986
Sanjay Rajaram	X	K S Gill	17.11.1986
R B Singh	X	V L Chopra	20.11.1986
S K Bose	IV	(Mrs) Asima Chatterjee	21.11.1986
V S Raju	IV	Dinesh Mohan	26.11.1986
G K Mehta	II	S S Kapoor	28.11.1986
A N Chatterjee	VII	H D Srivastava	5.12.1986
Bir Bahadur	VI	V Puri	9.12.1986
Sohail Ahmad	IX	P K Bhattacharyya	15.12.1986
A C Chaturvedi	IV	D V Singh	15.12.1986

Appendix II

Admission of Fellows under Rule 13

Name of the Fellow	Introduced by
Professor Phoolan Prasad	Professor N Mukunda
Professor Narendra Kumar	Professor K P Sinha
Dr K J Rao	Professor T R Kasturi
Professor V Krishnan	Professor S K Rangarajan
Professor G S R Subbarao	Professor T R Kasturi
Professor N Appaji Rao	Professor A N Radhakrishnan
Professor H Sharat Chandra	Dr N K Notani
Professor J D Padayatty	Professor P S Sastry
Professor M Vijayan	Professor V Sasisekharan
Professor C M Srivastava	Professor S K Joshi
Dr V S Ramamurthy	Shri C V Sundaram
Professor T J Pandian	Professor T N Ananthakrishnan
Dr K K Kannan	Professor M A Viswamitra
Dr V Arunachalam	Professor H Y Mohan Ram
Professor N S Narasimhan	Professor T R Kasturi
Professor U C Chaturvedi	Professor P N Tandon
Professor Ashok Maitra	Professor M S Raghunathan
Professor S S Abhyankar	Professor M S Raghunathan
Professor B N Das	Dr P Rama Rao
Dr A V Rama Rao	Professor T R Kasturi
Dr T V Ramakrishnan	Professor S K Joshi

Awards and Honours

AWARD OF D N WADIA MEDAL 1986

D N Wadia Medal, established by the Academy in 1977 is one of the subject-wise medals awarded every three years to a scientist for his outstanding contributions to Earth Sciences—Geology, Geophysics and Geography. The medal is being awarded for the year 1986 to **Professor C S Pichamuthu**, a distinguished Fellow of the Academy and former Director, Department of Mines & Geology, Karnataka for his outstanding contributions in the field of Precambrian Geology and particularly his studies on the Dharwar Craton.

Professor Pichamuthu's research contributions are of importance to the understanding of the crustal evolution during the Precambrian period as evidenced from the Dharwar craton. His work established the importance of sedimentation during the Archaean times. He distinguished stable and mobile regimes of sedimentation in the Archaean Dharwar schist belts. Cycles of sedimentation were recognised in the Dharwar sequence. He was one of the earliest to discover evidence of organic activity in the Archaean age when he found algal filaments in cherts of the Dharwar sequence. Professor Pichamuthu found evidences of submarine volcanic activity in the metavolcanic rocks of the Dharwar craton. All these contributions of the awardee stood the test of time and have given rise to a great deal of research activity on the Dharwar craton.

Professor Pichamuthu is a recipient of numerous honours and distinctions—Fellowship of Geological Society of London, the Royal Society of Edinburgh, the Indian Academy of Sciences, the Mineralogical Society of India and Presidentship of Mysore Geologists Association (1949), Mining and Metallurgical Society of India (1957), the Science Society of Malaya (1958) and the Geological Society of India (1971). He was also awarded the Mysore Geologists Association Gold Medal (1972) and the Pramatha Nath Bose Medal of the Asiatic Society (1974).

AWARD OF JAGDISH CHANDRA BOSE MEDAL 1986

Jagdish Chandra Bose Medal, established by the Academy in 1977, is awarded every three years to a scientist for outstanding contributions in Biochemistry, Biophysics, Molecular Biology and related areas. The award carrying a medal has been awarded for the year 1986 to **Professor M A Viswamitra**, Fellow of the Academy and Chairman, Department of Physics, Indian Institute of Science, Bangalore in recognition of his outstanding contributions to the crystallisation and structure analysis of biologically important molecules.

Professor Viswamitra's work has led us to newer understanding of the fine details of DNA structure. He was the first to crystallise a DNA fragment (tetramer) which showed the possibility of a fine structure in DNA depending on its base sequence. His crystal structure studies from monomers to oligonucleotides pioneered the field of DNA crystallography at a time when there were hardly any structural studies on DNA fragments.

His research has demonstrated that the Watson-Crick double helix-assumed to be uniform for over two decades—could have a sequence-dependent structure where even the phosphate-sugar backbone show important structural alterations. Professor Viswamitra was the Chairman of a separate section on "Sequence-Dependent Oligonucleotide Conformation" of a Microsymposium on Nucleic Acids organised during the 13th International Congress on Crystallography held at Hamburg in August, 1984. His recent work has also indicated the possibility of novel double helical structures of considerable importance in certain biological situations where the polynucleotide strands intercalate instead of forming base-pairs.

Professor Vismamitra's pioneering work on crystallization and x-ray studies of nucleotide coenzymes have contributed substantially to the

detailed understanding of the molecular structure of the nucleotide coenzymes.

AWARD OF ARYABHATA MEDAL 1986

Aryabhata Medal was established by the Academy in 1977. The medal is awarded once in three years to an eminent person in any branch of science.

The Medal for the year 1986 has been awarded to **Professor S Ramaseshan**, FNA, Visiting Professor, Raman Research Institute, Bangalore for his outstanding contributions in the field of x-ray crystallography.

Professor S Ramaseshan has made pioneering contributions in the fields of optics, x-ray and neutrons, physics of materials at high pressures, fibre reinforced composites and electrocomposites. His work is marked by a novelty of approach and simplicity of methods. His work on anomalous scattering has been widely used by later workers for elucidating the structure of complex crystals containing large molecules. In addition to his own contributions to basic sciences, his group has made significant contributions to applied materials research.

Professor Ramaseshan is Fellow of Indian National Science Academy & Indian Academy of Sciences. He was President of the Indian Academy of Sciences from 1983-85 and Vice-President of the International Union of Crystallography from 1981-84. He has been honoured with Shanti Swarup Bhatnagar Prize (1962), Jawaharlal Nehru Fellowship (1977-79) and VASVIK Award (1980).

AWARD OF S H ZAHEER MEDAL 1986

S H Zaheer Medal was established by the Academy in 1977 to commemorate late Dr S H Zaheer. The Medal is awarded once in three years to a scientist for outstanding contributions in Engineering and Applied Sciences.

The Medal for the year 1986 has been awarded to **Shri C V Sundaram**, FNA, Director, Indira Gandhi Centre for Atomic Research, Department of Atomic Energy, Kalpakkam for his outstanding

contributions in the field of extractive metallurgy of rare metals.

Shri Sundaram has been associated with the Indian Atomic Energy Programme since 1956, and is presently the Director of the Indira Gandhi Centre for Atomic Research at Kalpakkam.

Shri Sundaram has specialised in the application of Metallurgical Thermochemistry, Halide Processes and High Temperature Vacuum Technology to the extraction and refining of rare metals. He has been responsible for establishing an excellent R&D group at Trombay devoted to all aspects of rare metal extraction technology.

Based on the detailed development work carried out by Shri Sundaram and his group, production plants for nuclear grade zirconium sponge metal and high purity titanium and a pilot plant for titanium sponge metal have been established at the Nuclear Fuel Complex, Hyderabad. A pilot plant has also been set up and is in operation at Vashi, New Bombay, for the production of beryllium metal and copper beryllium alloy. In all these programmes, special emphasis has been placed on effective utilisation of national resources, tailoring of special materials for industrial applications, and development of indigenous capability for fabricating sophisticated equipment and machinery.

Under the leadership of Shri Sundaram, the completion and commissioning of the Fast Breeder Test Reactor at Kalpakkam has been accomplished. The Fast Breeder Test Reactor is a landmark in the efforts to use breeder reactors for future power generation in India.

Shri Sundaram was President of the Indian Institute of Metals for the year 1981-82 and was Editor of TRANSACTIONS OF THE IIM (1972-80). He is a Fellow of the Indian National Science Academy and the Indian Academy of Sciences.

For his contributions to Rare Metals Research & Development, Materials Science & Technology, Shri Sundaram has been awarded the Kamani Gold Medal of the Indian Institute of Metals (1966), the Binani Gold Medal Certificate (1968), the National Metallurgists Award of the Ministry of Steel & Mines (1970), the VASVIK Award (1979), the IISc

Platinum Jubilee Alumni Award (1984) and the IIM Platinum Medal (1985).

Shri Sundaram is also the recipient of the Sanjay Gandhi Award for S & T in the field of Energy (1985) and the 'Padma Bhushan' Award in the Republic Day Honours of 1986.

SHRI DHANWANTARI PRIZE 1986

Shri Dhanwantari Prize was established in 1969 out of an endowment made by Shri A K Asundi in the memory of his daughter Shrimati Akkadevi. This prize is awarded once in five years to an eminent scientist for his outstanding work in India in any branch of medical science including researches in drugs and methodology of Ayurveda. The award carries a prize and a medal.

The Prize for the year 1986 is being awarded to **Professor Prakash Narain Tandon**, a distinguished Fellow and formerly, Secretary of the Indian National Science Academy. He is Professor and Head, Department of Neurosurgery, All India Institute of Medical Sciences, New Delhi.

Professor Tandon combines in one person a matchless clinician, distinguished scientist and eminent teacher, who has served the cause of medical sciences in general and neurosciences in particular.

Professor Tandon's research contributions in neurology and neurosurgery cover a wide range of basic and applied aspects.

His attention has been directed to the understanding (1) Neurological/neurosurgical patterns in India with respect to infantile tremor syndrome, anterior encephalocele, chronic persistent encephalitis and the etiology of subarachnoid haemorrhage and paraplegia; (2) Tuberculosis of the nervous system; (3) Patterns of head injury in the local community and studies on closed depressed fractures of the skull; (4) Clinico-pathological studies and management of tumours; (5) Neuro-nuclear medicine; (6) Neuro-otology; (7) Clinical electrophysiology; (8) Epilepsy; and (9) Neurocysticercosis.

Professor Tandon has devoted himself to the task of generating basic knowledge about causes of

morbidity and mortality due to neurological disorders prevalent in our country and developing methods of reducing them. It is through his utter dedication that the Neurosurgery Department has developed into a centre with excellent modern facilities for teaching, research and medical care at the Institute.

Professor Tandon is the recipient of numerous awards and honours: Padma Shri (1973); Hony. Surgeon to the President of India (1976); B C Roy Award (1980); M N Sen Oration Award (1980); ICMR Col. Sangam Lal Lectureship (1981); National Lecturership of UGC (1982-83); the Academy Oraton (1982) of the National Academy of Medical Sciences; FICCI Award (1983) for life sciences and Jawaharlal Nehru Fellowship (1984-1986).

AWARD OF GOLDEN JUBILEE COMMEMORATION MEDAL 1986

Golden Jubilee Commemoration Medal (Biological Sciences), established by the Academy in 1985 is to be awarded once every three years to a scientist for his outstanding contributions in biological sciences. The medal for the year 1986 is being awarded to **Professor Obaid Siddiqi**, a Fellow of the Academy and Professor of Molecular Biology at the Tata Institute of Fundamental Research, in recognition of his distinguished contributions to microbial molecular genetics and neurobiology.

An alumnus of the Aligarh Muslim University and the Indian Agricultural Research Institute, Professor Siddiqi had his early training in plant embryology and wheat genetics. He moved to Glasgow to work with Professor G Pontecorvo on microbial genetics.

Professor Siddiqi's early work was on the mapping of fine structure of the *paba* gene of *Aspergillus*. In collaboration with Professor A Garen, he discovered the suppressors of "nonsense" mutations which led to the discovery of "nonsense" codons. He showed that recombinant bacteria inherit labelled DNA of biparental origin.

He joined the Tata Institute of Fundamental Research in 1962 and set up the Molecular Biology Unit, ushering the beginnings of this exciting field

of research. Here, his pioneering studies in bacteria established that the transfer of DNA during conjugation was independent of its replication. He was awarded the Bhatnagar Prize for this work.

His association in the seventies with Professor Seymour Benzer at the California Institute of Technology drew him to the growing field of neurogenetics. He described paralytic mutants of the fruitfly, *Drosophila* which exhibit neurophysiological defects in the electrical activity of their nerves and muscles. This work led to the identification of several genes that control membrane functions of the neuromotor system.

Professor Siddiqi has built an active school of molecular biology and neurogenetics at TIFR. He and his associates are presently engaged in the integrated genetic and neurobiological investigation of chemosensory perception in *Drosophila*.

Professor Siddiqi is associated with numerous national and international scientific bodies. He is President of the Indian academy of Sciences and a Fellow of the Royal Society, London. He is the recipient of Padma Bhushan.

Other Awards

Dr **B P Pal** FNA, Past-President of the Academy and former Director-General of the Indian Council of Agricultural Research have been awarded Padma Vibhushan by the President of India.

Professor **M M Sharma**, FNA, Vice-President of the Academy and Professor **R Narasimha**, FNA,

Director, NAL, Bangalore has been awarded Padma Bhushan by the President of India.

Professor **P V S Rao**, FNA, Tata Institute of Fundamental Research, Bombay has been awarded Padma Shri by the President of India.

The following INSA Fellows are the recipients of Om Prakash Bhasin Award (1986) for Science and Technology :

- (a) Professor **H Y Mohan Ram**, FNA, (Secretary, INSA) University of Delhi, Department of Botany, Delhi-7.
- (b) Dr **S Varadarajan**, FNA, Chief Consultant, Planning Commission, Yojna Bhavan, New Delhi.
- (c) Dr **K K G Menon**, FNA, Vice-President (Research) Hindustan Lever Ltd, Hindustan Lever Research Centre, Andheri, Bombay-99
- (d) Dr **H K Jain**, FNA, Senior Research Fellow, International Services for National Agricultural Research, The Netherlands.
- (e) Dr **L K Doraiswamy**, FNA, Director, National Chemical Laboratory, Poona.
- (f) Dr **M S Valiathan**, FNA, Director, Sri Chitra Tirumal Institute of Medical Science and Technology, Trivandrum.
- (g) Dr **P V S Rao**, FNA, Tata Instt. of Fundamental Research, Bombay.

Professor **S K Mukherjee**, FNA has been elected as a Honorary Member of the International Society of Soil Science.

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ALBERT EINSTEIN—SELECTIONS FROM AND ON EINSTEIN

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The above publication was brought out by the Academy in 1984 and a few copies of the same are available from the Academy's Library. This publication consisting of 171 pages contains selections from and on Einstein. It is a non-priced publication and would be sent to the Fellowship against a specific request for the same, which may please be sent to the :

Librarian
Indian National Science Academy
Bahadur Shah Zafar Marg
New Delhi-110 002

Obituary



expired as Deputy-Director of NIO on 14.11.86.

He was the Fellow, Geological Society of India and received Shanti Swarup Bhatnagar Prize in Earth Sciences (1978) and Padma Shri (1983).

Dr Siddiquie has contributed to the marine geology and recent sediments of the Arabian Sea and the Bay of Bengal. He has surveyed and estimated the reserves of calcareous sands in the lagoons of Lakshadweep and ilmenite deposits off Ratnagiri, surveyed the submarine pipeline routes and the locations of platforms on the Bombay High. As a deputy leader, he planned and

Hassan Nasien Siddiquie, FNA was born on July 20, 1934. He did his M Sc from Aligarh Muslim University in 1956. He was the Senior Geologist, Geological Survey of India and later joined

Siddiquie, was elected to the Fellowship of National Institute of Oceanography (NIO), Goa. He the Academy in 1983.

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Under the NRC/IDRC (Canada) programme, the Indian National Science Academy has started receiving the following thirteen Canadian research journals for an initial period of three years. The Fellowship of the Academy and other research workers are free to use this facility. The journals are:

- 1) Canadian Journal of Botany
- 2) Biochemistry & Cell Biology
- 3) Canadian Journal of Chemistry
- 4) Canadian Journal of Civil Engineering
- 5) Canadian Journal of Computational Intelligence
- 6) Canadian Journal of Earth Sciences
- 7) Canadian Journal of Forest Research
- 8) Canadian Journal of Genetics & Cytology (From 1987 entitled 'Genome')
- 9) Canadian Geotechnical Journal
- 10) Canadian Journal of Microbiology
- 11) Canadian Journal of Physics
- 12) Canadian Journal of Physiology and Pharmacology
- 13) Canadian Journal of Zoology.

For further information, contact : Sh B D Ukhul; Librarian, INSA, Bahadur Shah Zafar Marg, New Delhi-110 002.

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Announcement

INVITATION FOR NOMINATIONS

1987

Last Date : 15th March 1987

Nominations are invited for the award of
(i) Professor K Rangadhama Rao Memorial Lecture (ii) Dr G P Chatterjee Memorial Lecture (iii) Dr Har Swarup Memorial Lecture (iv) Professor Panchanan Maheshwari Memorial Lecture (v) INSA-TS Tirumurti Memorial Lecture (vi) Dr Nitya Anand Endowment Lecture and (vii) Professor B D Tilak Lecture Award.

The nominations may be sent to the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110002. Last date for receipt of nominations at Delhi is 15th March 1987.

The nominations should contain :

1. Name of the Award

2. Full name, age and address of the nominee

3. Academic and professional qualifications and positions held.

4. A brief statement (of not more than 300-350 words) of the outstanding contributions of the nominee in the concerned discipline, highlighting the impact of his work.

5. A list of titles of the most significant publications.

Professor K Rangadhama Rao Memorial Lecture

The lecture was established in 1979 out of an endowment of Rs. 10,000 contributed by old students of Professor K Rangadhama Rao, an eminent physicist and a distinguished Fellow of the Academy.

An awardee is to be selected from amongst the scientists known for their outstanding contributions

in the field of **Spectroscopy**. The award is to be given **once in two years**. The first award was made in 1979. The lecturer is paid an honorarium depending upon the income accruing from investment of the original endowment besides travelling and halting expenses for journeys performed to deliver the lecture.

Dr G P Chatterjee Memorial Lecture

The lecture was established in 1979 out of an endowment of Rs. 15,000 by Dr G P Chatterjee and Mrs Suniti Chatterjee to commemorate Dr G P Chatterjee, an eminent Metallurgist and Fellow of the Academy.

The selection is to be made from amongst scientists known for their outstanding contributions in **any field of science** as recognised by INSA. The award is to be given **once in two years**. The first award was made in 1981. The lecturer is paid an honorarium depending upon the income from the endowment besides travelling and halting expenses for journeys performed to deliver the lecture.

Dr Har Swarup Memorial Lecture

The lecture was established in 1981 out of an endowment of Rs 10,000 by Dr (Mrs) Savitri Swarup to commemorate Dr Har Swarup, a Fellow of the Academy distinguished for his researches on endocrinology, physiology and developmental biology.

A scientist is to be selected from amongst the scientists who have made outstanding contributions in the field of **Zoology**. The award is given **once in three years**. The first award was made in 1984. The lecturer is paid an honorarium depending upon the income accruing from the investment besides travelling and halting expenses for journeys performed to deliver the lecture.

Professor Panchanan Maheshwari Memorial Lecture

The lecture was established in 1984 out of an endowment of Rs 26,200 by the colleagues and friends of late Professor Panchanan Maheshwari, a distinguished botanist and a Foundation Fellow of the Academy.

An awardee is to be selected from amongst the scientists known to have made outstanding contributions in any area of **Plant Sciences**. The award is to be given **once in two years**. The lecturer is paid an honorarium depending upon the income accruing from the investment besides travelling and halting expenses for journeys performed to deliver the lecture.

INSA-TS Tirumurti Memorial Lecture

The lecture was established in 1985 out of an endowment of Rs 25,000 by Mrs Janaki Ramachandran, daughter of late Dr T S Tirumurti, a Foundation Fellow of the Academy, known for his notable contributions to pathology and medicine.

An awardee is to be selected from amongst the scientists known to have made outstanding contributions in the field of **Medical Sciences**. The award is to be given **once in two years**. The first award was made in 1985. The lecturer is paid an honorarium depending upon the income accruing from investment besides travelling and halting expenses for journeys performed to deliver the the lecture.

Dr Nitya Anand Endowment Lecture

The lecture was established in 1986 out of an endowment of Rs. 1,30,000 by the Organising

Committee to celebrate the 60th Birthday of Dr Nitya Anand, an eminent chemist and a Fellow of the Academy. The amount was contributed by Dr Nitya Anand's friends, students and admirers in academic institutions and the pharmaceutical industry.

The lecture is to be delivered every alternate year by a scientist below 50 years of age who has done outstanding work in any **area of biomedical research including new drug development**. The award shall be based on work done in India during the previous 10 years. The lecturer is paid a cash award of Rs. 25,000. The expenditure on travel and daily allowance is covered by the cash award.

Professor B D Tilak lecture Award

The lecture award was established in 1982 out of an endowment of Rs 100,000 by Professor B D Tilak Scientific Research and Education Trust, C/o National Chemical Laboratory, Pune, to commemorate Professor B D Tilak, a Fellow of the Academy distinguished for his researches in the field of dyestuffs chemistry and organic chemical technology.

A scientist is to be selected from amongst the scientists known to have made outstanding contributions to **rural economy and life through innovative and effective application of science and technology**. The award is to be given every year. The first award was made in 1983. The lecturer is paid an honorarium depending upon the income accruing from the investment besides travelling and halting expenses for journeys performed to deliver the lecture.

*** * * INSA BURSARY SCHEME ***

The Indian National Science Academy invites applications from individual scientists for the award of INSA Bursary Scheme (non-recurring) under which crucial grant upto Rs 40000/- can be sanctioned by the Academy for the purchase of equipments, components, and accessories, chemicals and such other items or to organize small group discussion of professional colleagues on important aspects of research and development or any other significant activity related to research.

Application forms of the Bursary grant may be obtained from the Project Officer (B.S.) Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002.

Requests received for the Bursary grant will be considered by the Academy from time to time.

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INTERNATIONAL CONFERENCE ON “TROPICAL MICRO-METEOROLOGY & AIR POLLUTION”

An International Conference on Tropical Micro-meteorology and Air Pollution will be organised under the aegis of the British Journal "Atmospheric Environment" in February 1988 in New Delhi, India. The conference is co-sponsored by the Indian National Science Academy and Indian Institute of Technology, Delhi. Many other Indian and International Societies are expected to co-sponsor the conference.

Despite considerable progress in science and technology, especially in relation to the improvement in the living conditions of the rural population, the conservation of the environment remains a matter of concern for the developing countries. We have not only to prevent future irreversible damage, but it is also our task to repair the damage that has already occurred.

The aim of this multi-disciplinary symposium will be to draw the attention of scientists to these twin aspects, viz. recommending preventive measures to avoid further damage and steps to ameliorate the situation in areas where evidence of damage is already apparent.

The following topics will be covered :

1. Procedures for dealing with accidental releases of substantial quantities of toxic material in densely populated areas.
2. Modelling and monitoring pollution from combinations of small dispersed and large industrial sources in urban and rural areas.
3. The impact of possible future growth in the use of alternative energy sources on air pollution in the tropics.
4. Characteristics of the tropical boundary layer over land and ocean :
 - a) Boundary layer dynamics
 - b) Observational studies

Selected papers will be published in a Special Issue of 'Atmospheric Environment' subject to the Journal's normal peer review process.

For further details please write to :

Professor M P Singh
Head, Centre for Atmospheric Sciences
Indian Institute of Technology,
Hauz Khas,
New Delhi - 110 016, India.



CHANGE OF ADDRESS

Please note the change of address in respect of the following INSA Fellows :

Dr I P Abrol,
Deputy Director General (SAE)
Indian Council of Agricultural Research
Krishi Bhawan,
Dr Rajendra Prasad Road,
New Delhi-110001.

Dr B Choudhury, FNA
Mother Dairy
Fruit & Vegetables Unit
H.P.M.C. Cold Store
C-1-3 Lawrence Road Industrial Area
Delhi-110035.

Professor J K Ghosh, FNA
Director,
Indian Statistical Institute,
203, Barrackpore Trunk Road,
Calcutta-700035.

Professor S K Joshi, FNA
Director,
National Physical Laboratory,
Hilside Road,
New Delhi-110012.

Professor Ashok Maitra, FNA
Professor,
Division of Theoretical Statistics and Mathematics,
Indian Statistical Institute,
203, Barrackpore Trunk Road,
Calcutta-700035.

Professor I C Pande, FNA
10 Inder Road,
Dehra Dun-248001

Dr V Ramalingaswami, FNA
Fogarty Scholar-in-Residence
Department of Health & Human Services
Public Health Service
National Institute of Health
Bldg. 16 Room 202
Bethesda, Maryland 20892
USA.

Professor S Rangaswami, FNA
C/o Professor S Sadagopan
IME Department,
Indian Institute of Technology,
Kanpur-208016.

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CURRENT AWARENESS SERVICE

In accordance with the decision of the Library Committee, a new service called 'Current Awareness Service' has been introduced from January, 1986. Under this scheme, INSA Library sends contents pages of selected journals to interested Fellows. A Fellow can be provided a photocopy of the articles of his interest which he may indicate after going through the current contents of the journal of his choice. The number of such journals from which a Fellow can make his choice is restricted owing to financial and personnel limitations. The service is currently available to Fellows on payment of annual subscription of Rs 50/- as notified through the circular letter dated *November 1, 1985* and *January 16, 1987*. The scheme is again brought to the notice of the Fellowship so that his service can be utilised by larger number of scientists. For further information: contact Mr B D Ukhul, Librarian, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002.

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INSA LIBRARY

BOOKS ADDED DURING SEPTEMBER 1986—DECEMBER 1986

SCIENCE GENERAL

THE CHILDREN'S TREASURY OF KNOWLEDGE. Hong Kong, Kodansha Ltd., 1985.

- (1) Electronics and energy.
- (2) Insects.
- (3) Prehistoric Life.
- (4) The Universe and Weather.

CHOPRA, S K Ed. : Brain Drain : And how to reverse it. Delhi, Lancer International, 1986.

FRANKLIN WATTS SCIENCE WORLD : London, Franklin Watts, 1985.

- (1) Astronomy.
- (2) Medicine.
- (3) Technology.

HEALTH OF SCIENCE IN INDIA : Analysis and recommendations : Based on the deliberations of a Workshop held at the Indian National Science Academy, New Delhi, April 17-18, 1986. Delhi, INSA, 1986.

SINGH, Dharendra : Astroquantum philosophy and science. Delhi, A.B.C. Publishing House, 1985.

THE WORLD BOOK SCIENCE ANNUAL 1985. Chicago, World Book, Inc., 1984.

YOKO, Ho Peng : An Introduction to science and civilization in China. Delhi, Oxford University Press, 1985.

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KEDROV, F. B. : Kapitza : Life and Discoveries. Moscow, MIR Publishers, 1984.

ROBINSON, Norman H. : The Royal Society catalogue of portraits. London, The Royal Society, 1980.

MATHEMATICS

JAIN, L.C. : Ganitasara-Samgrahda : An ancient treatise on mathematics. Sholapur, Gulabchand Hirachand Doshi, 1963.

WORLD DIRECTORY OF MATHEMATICIANS 1986. 8th edn. Finland, International Mathematical Union, 1986.

ASTRONOMY

DEEKSHATULU, B. L. & RAJAN, Y. S. Eds. : Remote sensing. Bangalore, Indian Academy of Sciences, 1984.

MOORE, Patrick & HUNT, Garry : Atlas of the solar system. Chicago, Rand McNally & Co., 1983.

SEN, S. N. & SHUKLA, K. S. Eds. : History of Astronomy in India. Delhi, Indian National Science Academy, 1985.

WEINBERG, Steven : The first three minutes : A modern view of the origin of the universe. London, Fontana, 1986.

PHYSICS

ITALIAN PHYSICAL SOCIETY : Proceedings of the International School of Physics "Enrico Fermi", Amsterdam, North-Holland, 1986. Course 93 : Frontiers in Physical Acoustics. Ed. by D. Sett.

PAIS, Abraham : Inward bound : Of matter and forces in the physical World. Oxford, Clarendon Press, 1986.

PARKER, Barry : Einstein's dream : The search for a unified theory of the universe. New York, Plenum Press, 1986.

THOMPSON, Roy and OLDFIELD, Frank : Environmental magnetism. London, Allen & Unwin, 1986.

CHEMISTRY

PHYSICS AND CHEMISTRY OF SURFACES : Proc. of Golden Jubilee Symposium, 28-30 September, 1984. Indian National Science Academy, New Delhi.

PROGRESS IN THE CHEMISTRY OF ORGANIC NATURAL PRODUCTS-Vol. 49. Wien, Springer-Verlag, 1986.

RAO, C N R Ed. : Advances in solid state chemistry : (Proceedings of the INSA Golden Jubilee Symposium on Solid State Chemistry, New Delhi, December 4-6, 1985). Delhi, INSA, 1986.

RAO C N R & GOPALAKRISHNAN, J : New directions in solid state chemistry : Structure, synthesis, properties, reactivity and materials design. Cambridge, Cambridge Univ. Press, 1986.

RECENT TRENDS IN INORGANIC CHEMISTRY : Proc. of the INSA Golden Jubilee Symposium on 'Recent Trends in Organic Chemistry' held in Calcutta at the Indian Association for the Cultivation of Science during December 16-18, 1985. Delhi, INSA, 1986.

RUSSELL, C A Ed. : Recent development in history of chemistry. London, The Royal Society of Chemistry, 1985.

EARTH SCIENCE

AGARWAL, D P et al. Eds. : Climate and geology of Kashmir—the last 4 million years : Proc. of the International Workshop on the late cenozoic palaeoclimatic changes in Kashmir and central Asia, Ahmedabad, 19-23 October, 1982. Delhi, Today & Tomorrow's Printers & Publishers, 1985.

BHATTACHARYA, A K et al. Eds. : Proceedings of the 4th Indian Geological Congress, Varanasi, 1982 : A Volume in honour of D K Chakravarti, Delhi, Today & Tomorrow's Printers and Publishers, 1985.

GRIBBIN, John Ed. : The breathing planet. Oxford, Basil Blackwell & New Scientist, 1986.

HIMALAYAN GEOLOGY Vol. 9, pt. 1-2 Dehra Dun, Wadia Institute of Himalayan Geology, 1979

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Academician **N G Basov**, FNA, NL, Director, Lebedev Institute, Moscow and Dr **David Suzuki**, University of British Columbia, Canada (both are the recipients of **1986 Kalinga Prize**) visited the Academy on January 16, 1987. Dr Suzuki spoke on Towards the Year 2000—The Challenge for Science And Society whereas Professor Basov spoke on 'Science & Society in USSR'. Professor Basov was admitted to the Foreign Fellowship of the academy. He signed the register and received the scroll from the President.

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